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April 15, 2005

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**Re: United States of America, et al. vs. Reilly Tar & Chemical Corporation, et al.  
File No. Civ. 4-80-469  
CD-RAP Section 9.2**

Gentlemen:

This letter requests approval from the Minnesota Pollution Control Agency and U.S. Environmental Protection Agency (the Agencies) for cessation of pumping at well W434. This request is made in accordance with Section 9.2 of the Consent Decree-Remedial Action Plan (CD-RAP) in the above captioned matter, and the Agencies' October 3, 2000 letter approving the cessation of pumping at well W422.

The City submitted a letter dated April 21, 2000 in response to the Agencies' December 6, 1999 letter requesting further evaluation of cessation criteria. The City's letter addressed four components necessary to evaluate pumping at wells W422 and W434. The four components were:

1. Cessation concentrations
2. Compliance with gradient control objectives
3. Assessment of contaminant spreading
4. Criteria to resume gradient control pumping

The pump in well W422 was turned off upon receipt of the Agencies' October 3, 2000 letter.

The Agencies were unable to approve cessation of pumping at well W434 due to the fact that it had only been pumping for three years, whereas the Agencies wanted a minimum of five years of pumping. Pumping at well W434 began in June 1997.



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### **Cessation Concentrations**

The City proposed current Minnesota Department of Health (MDH) health risk limits (HRL) for six specific non-carcinogenic PAH compounds as potential cessation criteria for the wells. In their December 6, 1999, letter, the Agencies agreed that the HRLs were suitable for evaluating cessation, provided that they are used in accordance with MDH guidance.

HRLs and Health Based Values, as established by MDH, provide numeric cessation concentrations. Table 1 lists the HRLs that have been established by the MDH, the MCL for benzo(a)pyrene, and the highest concentration of each of these compounds found in well W434 since monitoring began in 1992. The water quality in well W434 is below the proposed cessation criteria.

The City's April 21, 2000 letter summarized the hypothetical risks associated with the water in the vicinity of W434. There are no drinking water exposures in the Drift and Platteville Aquifers (and essentially none in the St. Peter Aquifer, although the City still maintains well SLP3 in this aquifer), therefore, there is no actual human health risks posed by PAH in these aquifers.

### **Compliance with Gradient Control Objectives**

Well W434 is completed in a relatively low permeability portion of the Platteville Aquifer, and has a very small capture area, as predicted from the pump test performed when this well was installed in May 1991. As a result, the only monitoring well that is located in the capture zone of well W434 is well W120, approximately 30 feet away. Other Platteville Aquifer monitor wells in the general vicinity of wells W120 and W434 include wells W431 and W433. All of these wells have total PAH concentrations in the low part per billion range, well below the MDH HRLs. The 2004 Annual Monitoring Report presents recent monitoring results during the past two years with no PAH detected in either well W431 or well W433. Based on the hydraulic characteristics of well W434, and on the dwindling levels of PAH in samples from well W434, as discussed below, it appears that this well has a very limited benefit intercepting PAH.

The Agencies' October 3, 2000 letter expressed concern related to the PAH concentrations in wells W426 and W437 located between the Reilly Site and well W434. Since 2000, these two wells have been monitored on a semi-annual basis. Concentrations of PAH are stable in these two wells; well W426 contains several hundred parts per billion of total PAH, and well W437 contains low part per million levels of total PAH. Total PAH concentrations in W434 have also remained stable at less than 6 parts per billion PAH. It is likely that the higher PAH concentrations in wells W426 and W437 are being captured by source control well W421. It is evident that higher concentrations of PAH from the vicinity of wells W426 and W437 are not migrating into the bedrock valley, even with eight years of pumping at well W434.

### **Assessment of Contaminant Spreading**

The gradient control objective of limiting the spread of contamination into the area delineated by the buried bedrock valley has been met, and continued operation of W434 no longer provides any benefit to meet that objective. Subsequent to the CD-RAP agreement, the St. Peter Aquifer RI/FS was completed, and a gradient control remedy has been implemented. Well W410 pumps



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at a minimum rate of 50 gallons per minute, and has been shown to capture groundwater in a large portion of the St. Peter Aquifer, including water in the vicinity of the bedrock valley. If PAH did migrate through the bedrock valley, the PAH would be contained by pumping in the St. Peter Aquifer.

Table 2 lists the wells that will be monitored in accordance with the 2005 Sampling Plan for the Reilly Site. The Drift, Platteville, and St. Peter Aquifer wells will be used to monitor post-cessation water levels and water quality in the vicinity of well W434. These wells will track PAH concentrations downgradient from the Reilly Site, between the Reilly Site and the bedrock valley, and in the St. Peter Aquifer where the bedrock valley leads. In accordance with the 2005 Sampling Plan, the Drift, Platteville, and St. Peter Aquifer wells shown in Table 2 will be sampled twice per year. Well W434 is also proposed to be monitored twice per year.

#### **Criteria to Resume Gradient Control**

The same numeric criteria established for cessation concentrations, as shown in Table 1, will be used to determine when to resume pumping at well W434. The City recommends that well W434 be placed on stand-by status with W422, wherein it will be included in the City's routine maintenance program, and the well house will continue to be supplied with electricity. The existing pump will remain in the well and will be used for the annual sampling events. The sewer connection will be maintained. No extraordinary measures will be required to return the well to active service, if needed.

The City asks that the Agencies approve this cessation request because the water quality in W434 meets the proposed numeric cessation criteria, and the hypothetical risks posed by the PAH in groundwater are acceptable. The well has been in operation for almost 8 years and continues to indicate a limited capture zone in the Platteville aquifer. The gradient control cessation criteria have been met, and will continue to be met after cessation of pumping.

The City is looking forward to discussing this request with the Agencies and would gladly meet for that purpose. Please contact this office if you have any questions regarding this submittal.

Sincerely,

A handwritten signature in black ink that reads "William M. Gregg". The signature is written in a cursive, flowing style.

William M. Gregg  
Project Leader for the  
City of St. Louis Park

Enclosures

cc: Scott Anderson, City of St. Louis Park  
Mike Rardin, City of St. Louis Park



**TABLE 1**  
**PROPOSED CESSATION CRITERIA FOR WELL W434**

Compound	EPA MCL <sup>1</sup> (ppb)	MDH HRLs <sup>2</sup> (ppb)	Proposed Cessation Criteria (ppb)	Well W434 (ppb) <sup>3</sup>
cPAH:				
Benzo(a)pyrene	0.2	-	0.2	0.27 <sup>4</sup>
Other PAH:				
Acenaphthene	-	400	400	3.5
Anthracene	-	2,000	2,000	0.18
Fluoranthene	-	300	300	0.15
Fluorene	-	300	300	ND <sup>5</sup>
Naphthalene	-	300	300	0.58
Pyrene	-	200	200	ND

<sup>1</sup> Benzo(a)pyrene is the only carcinogenic PAH listed by the EPA and MDH to have a MCL. The MCL for Benzo(a)pyrene is 0.2 ppb.

<sup>2</sup> Based on MDH HRLs, these six compounds, listed above, are the only "Other PAH" listed by the MDH's HRLs for groundwater. The only EPA reference for Other PAH is 400 ppb Health Advisory for naphthalene.

<sup>3</sup> Concentrations shown are the highest levels of these compounds detected in any sample since monitoring began in 1992.

<sup>4</sup> Benzo(a)pyrene was detected in only one sampling event since monitoring began in 1992.

<sup>5</sup> Compound has never been detected. Detection limits have varied, but have always been 10 ppb or less.

**TABLE 2**
**Sampling Plan Groundwater Monitoring Schedule**

Source of Water	CD-RAP References	Sampling Points	Start of Monitoring	Sampling Frequency	Analyses
Mt. Simon-Hinckley Aquifer	5.1	SLP11, SLP12, SLP13, SLP17	Date of plan approval	Annually	PAH (ppt)
	5.3.2	New municipal wells within one mile of well W23	At the time of installation	Annually	PAH (ppt)
Ironton-Galesville Aquifer	6.1.4	W105	Date of plan approval	Every even numbered year	PAH (ppt)
	6.2.1	New municipal wells within one mile of well W23	At the time of installation	Annually	PAH (ppt)
Prairie du Chien-Jordan Aquifer	Table 1	SLP6, W48, W119, W413	Date of plan approval	Quarterly	PAH (ppt)
	Table 1	SLP4, SLP10 or SLP15, W23, W29, W40, W70, W401, W402, W403, E2, E3, E7, E13, E15	Date of plan approval	Annually	PAH (ppt)
	Table 1	E4, SLP5, SLP8, W32	Date of plan approval	Semi-annually	Water level monitoring
	Table 1	H6, MTKA6, SLP7 or SLP9, SLP14, SLP16, W405 or W406	Date of plan approval	Every even numbered year	PAH (ppt)
St. Peter Aquifer	Table 2	SLP3, W24, W33, W122, W133, W410, W411, W412	Date of plan approval	Semi-annually	PAH (ppt)
	Table 2	W409	Date of plan approval	Semi-annually	PAH (ppb)
	Table 2	P116, W129, W408	Date of plan approval	Semi-annually	Water level monitoring
Platteville Aquifer	9.2.3	W421	Date of plan approval	Quarterly	PAH (ppb)

**TABLE 2**
**Sampling Plan Groundwater Monitoring Schedule**

Source of Water	CD-RAP References	Sampling Points	Start of Monitoring	Sampling Frequency	Analyses
	Table 2	W20, W27, W101, W131, W143, W426, W428, W431, W433, W434, W437, W438	Date of plan approval	Semi-annually	PAH (ppb)
	Table 2	W1, W18, W19, W100, W120, W121, W124, W130, W424	Date of plan approval	Semi-annually	Water level monitoring
Drift Aquifer	9.1.3	W420	Date of plan approval	Quarterly	PAH (ppb)
	Table 2	P109, P112, P307, P308, P309, P310, P311, P312, W11, W117, W136, W422, W427, W439	Date of plan approval	Semi-annually	PAH (ppb)
	Table 2	P47, W2, W10, W15, W116, W128, W135	Date of plan approval	Semi-annually	Water level monitoring